

Comments by Clean Energy Systems, Inc. on the
Economic and Technology Advancement Advisory Committee
Report Discussion Draft,
 dated 12/21/2007

Introduction

Clean Energy Systems, Inc. (CES) has reviewed with interest the ETAAC Report Discussion Draft, dated 12/21/07 and offers the following comments.

The draft Report represents a substantial effort and considerable study involving a wide range of economic and technological factors involved in potential actions to implement AB32. CES congratulates the ETAAC on the inclusive scope and substance of the Report. Our comments are concerned with certain of the elements presented in Section 5. ELECTRICITY AND NATURAL GAS SECTORS, and Appendix IV: Back ground Status Report on Energy Technology.

In Section 5. the draft describes the value and influence of energy efficiency achieved in a variety of ways indicated (p. 5-2 and 5-4 to 5-5). Similarly, the report indicates that California's leadership in implementing renewable fuel programs is likely to continue, and that such programs should be expanded and significantly supported by the state through programs "including trading of unbundled renewable energy credits for in-state renewable energy; renewable pricing established by the CPUC; production tax credits; and other policy recommendations" (p. 5-6) set forth in Appendix IV.

The draft indicates that "California possesses enough renewable resource potential within its borders to provide several times the state's current electricity needs and contribute substantially to GHG emission reductions." (p. 5-6) In the discussion of "Ease of Implementation" concerning expanding renewable resources, the draft does not address the problems required to be resolved before such exploitation could be realized, presenting an incomplete description of the issues involved in realizing such exploitation. Although the draft discusses the problems associated with permitting and siting, land leasing, storage, a "clogged" CA ISO transmission interconnection queue and right-of way acquisition issues, mitigating factors to these problems are not described sufficiently.

Section 5.C, Renewable Energy Technology Assessment, refers readers back to the "Ease of Implementation" discussion of Section 5. B, in connection with assessment of wind power, geothermal power, and biomass and waste energy generation. However, none of the identified and discussed issues involved in these power sources is dealt with in the Section 5.B discussion of implementation.

The discussion in Section 5. D, on Electricity Storage as an Enabling Technology for Renewable Energy, is a well documented and fully considered section and the technologies summary presented at page 5-14 is commendable, informative and useful. Similarly, the discussion in Section 5. E, on Plug-in Electric Drive Vehicles as Storage Devices, is a relatively complete and useful discussion of this topic.

Section 5. G. addresses Carbon Capture and Sequestration in Geological Formations.

The Time-Frame discussion indicates that demonstration projects can be in place by 2012, with potential for full commercialization by 2020. With reference to the use of oil and gas reservoirs for disposal of carbon dioxide, more than 25 million tons per year are stored in oil fields in Texas, Mississippi, and Canada, with more than thirty years' experience to draw on. With respect to saline aquifers, a demonstration project has been in service for over ten years in the North Sea (Sleipner Project). Substantial early results of these CO₂ storage projects have been widely published.

The Ease of Implementation discussion is contained in one word "Difficult." But there is no identification of the reason(s) for this conclusion. Appendix IV notes that considerable work is in process in this area. Given the fact that energy efficiency and expansion of renewable energy together will be insufficient to meet the objectives of AB 32, implementation of CCS projects should be seen as necessary and feasible, and comparable in difficulty to substantial increases in renewable resources beyond 30% of overall grid capacity. CES believes that this Ease of Implementation paragraph deserves reconsideration and additional work.

At page 5-20 the draft indicates "Unlike many efficiency measures, CCS is unlikely to bring positive economic return under even the most optimistic scenarios currently foreseen." There are a variety of scenarios, some of which were recently presented to the committee, involving the separation and capture of carbon dioxide for sale to oil producers for enhanced oil recovery, which produce positive economic returns for CCS technologies. We fully agree that a clear and reliable price signal would be highly beneficial in the commercialization of CCS.

We believe the draft report would be considerably strengthened by full recognition of the avoided carbon costs of CCS compared to the avoided carbon costs of renewables, both of which provide a common end of no emission of GHG or pollutants. Renewables have an added benefit of sustainability, but from the perspective of avoided carbon emissions, CCS is recognized as lower cost than most renewable options, other than some wind opportunities.

While CCS is substantially discussed it is offered no recommended assistance by the state, and CES believes that CCS should receive the same or comparable state support benefits as are recommended in the draft report for renewables. Effective policy should not identify technology winners and losers, but instead should provide proper incentives focused on the intended result, which is low carbon emissions. We noted earlier a package of recommended state support actions for renewables, and we believe comparable assistance should be given to CCS technology as well, for CCS with at least 85% carbon capture.

In connection with encouraging the replacement and repowering of the historic fossil fueled plants in CA, it would be useful and supportive for the state to consider establishment of a "Carbon Capture Portfolio Standard" to complement the RPS and result in actual deployment of new technology. This would help drive the cost of carbon capture down.

The discussion of CO₂ Abatement Potential at page 9-56 indicates that “Technology is available to capture 85 to 95 percent of the CO₂ processed in a capture plant.” CES has demonstrated near 100% separation and capture of CO₂ at its Kimberlina Power Plant in Bakersfield CA.

These are our comments, coupled again with appreciation for an outstanding effort in preparing the discussion draft report.

Clean Energy Systems, Inc.
3035 Prospect Park Drive, Suite 150
Rancho Cordova CA 95670